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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/600,952	07/25/2000	Edna Chosack	S02/11	4168

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D Graeser
The Polkinghorns
9003 Florin Way
Upper Marlboro, MD 20772

EXAMINER
SAADAT, CAMERON

ART UNIT	PAPER NUMBER
3713	

DATE MAILED: 05/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/600,952	Applicant(s) CHOSACK ET AL.	
	Examiner Cameron Saadat	Art Unit 3713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-17 and 21-26* is/are rejected.

7)☒ Claim(s) *8,18-20 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Applicant is informed that one of the U.S. Patent No. 5,882,206 cited on page 3 of 5, of the IDS filed on February 23, 2001, has been crossed out by the examiner because it is duplicated.

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This Application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in response to this action, to elect a single invention to which the claims must be restricted.

I. Claims 1-27, drawn to the system for performing a simulated medical procedure.

II. Claims 28-38, drawn to the method of performing a simulated medical procedure.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The inventions are distinct each from the other because inventions I and II are prima facie independent and distinct inventions due to their recitations of distinct and specific structures. Invention I is directed to the structure of the system for performing a simulated medical procedure. Invention II is directed to the structure of a method of performing a simulated medical procedure. Because these inventions are distinct for the reasons given above, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with D'vorah Graeser on January 18, 2002, conducted by examiner Dmitry Suhol, a provisional election was made without traverse to prosecute the Invention I, claims 1-27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 28-38 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

4. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Referring to Claim 3, the description "said texture mapping" is unclear and confusing. It is not understood as to whether it is referring to texture mapping database or texture mapping engine. Furthermore, the statement "texture mapping is animation" should be recited as -- texture mapping is an animation --, to correct the grammatical error.

7. Referring to Claim 4, the antecedent basis for "said texture mapping" has not been clearly set forth.

8. Claim 5 is rejected for incorporating the above errors from its respective parent claim by dependency.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

10. Claims 1-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Jacobus et al. (U.S. Patent No. 5,769,640)

11. Referring to claim 1, Jacobus et al. discloses a simulated medical procedure comprising: a simulated organ (column 7, lines 4-9 or column 10, line 27), a simulated instrument 134 (see column 7, lines 55-56), and simulated instrument locator 46. Jacobus et al. further teaches a visual display (visual feedback), for displaying images created from actual data of an actual medical procedure, according to location of a simulated instrument within a simulated organ (column 4, lines 31-38). Said display includes a mathematical model for modeling said simulated organ according to a corresponding actual organ; said model is divided into a plurality of segments (column 5, lines 24-28). Said display further includes a loader for selecting at least one of said plurality of segments for display, according to the location of a simulated instrument within a simulated organ (column 5, lines 20-24). In addition, Jacobus et al. teaches a display comprising a controller for selecting a simulated image according to the location of a simulated instrument, and displayer 56 for displaying said simulated image (column 5, lines 20-24).

12. Referring to claim 2, Jacobus et al. additionally discloses a visual displayer comprising texture mapping database 42 for storing texture mapping data; texture mapping engine 54 for overlaying a simulated image with texture mapping data before displayed.

13. Referring to claim 3, Jacobus et al. discloses texture mapping data engine that comprises animation of random movements of simulated instrument and random movement of simulated organ (see Figure 4, items 42, 46, 54).

14. Referring to claim 4, Jacobus et al. teaches a system in which the texture mapping data includes images obtained from performing an actual medical procedure on an actual subject (column 4, lines 39-49).

15. Referring to claim 5, Jacobus et al. further teaches a system in which images are obtained by recording visual data during a medical procedure and selecting said images from the recorded visual data (column 4, lines 39-63).

16. Referring to claim 6, Jacobus et al. discloses a mathematical model that features a plurality of polygons constructed according to a spline that determines the geometry of the mathematical model in three dimensions (column 5, lines 24-31).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobus et al. (U.S. Patent No. 5,769,640), in view of Asano et al. (U.S. Patent No. 5,956,040). Jacobus et al. discloses mathematical model of a simulated organ, but does not specify a deformation in the simulated organ determined by altering a function (as per claim7). Jacobus et al. further fails to specify that the simulated organ is modeled as a straight line that can be altered through a function (as per claim 9). Asano et al. teaches a deformation in the simulated organ determined by altering a function (column 4, lines 21-41). Asano

et al. further teaches that the simulated organ is modeled as a straight line that can be altered through a function (column 4, lines 21-41).). It would have been obvious to one of ordinary skill in the art at the time the invention was made to alter the Jacobus et al. simulated organ model to the simulated organ model taught by Asao et al. for the purpose of providing accurate visual feedback.

19. Claims 10-17, 21, and 23-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobus et al. (U.S. Patent No. 5,769,640), in view of Gillio (U.S. Patent No. 5,882,206).

20. Referring to claim 10, Jacobus et al. teaches the use of a controller for selection of images, according to the movement of a simulated instrument within a simulated organ. Jacobus et al. does not teach a specific controller image selection. However, Gillio discloses image selection according to one previous movement (column 14, lines 14-17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the Jacobus image selection controller with the specific image selection process disclosed by Gillio, so that real-time, accurate visual feedback is achieved.

21. Referring to claims 11-12, Jacobus et al. discloses the use of a displayer, but does not explicitly teach the use of a graphical user interface (as per claim 11) and does not teach a graphical user interface that displays tutorial information (as per claim 12). Gillio teaches the use of a graphical user interface (column 5, lines 27-31), and also a graphical user interface that displays tutorial information (column 3, lines 8-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the Jacobus displayer with the Gillio graphical user interface and tutorial information, so that the student can easily interact with the simulator and receive help with the medical procedure.

22. Referring to claim 13-14, Jacobus et al. discloses a simulated organ (column 10, line 27) but does not specify a particular organ (as per claim 13). Jacobus et al. however does teach that the simulated organ has semi-flexible and smooth characteristics (column 10, lines 45 and 49). Gillio teaches a simulated organ as being a gastro-intestinal tract (column 7, lines 39-43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to specify the Jacobus simulated organ as being a gastro-intestinal tract as taught by Gillio, since endoscopic procedures are commonly performed on said simulated organ.

23. As per claim 15, Jacobus et al. discloses a simulated instrument 48 comprising a sensor for determining the location of the simulated instrument within the simulated organ, and a computer 44 to provide visual feedback of the simulated instrument location (column 5, lines 11-19).

24. As per claim 16, Jacobus et al. further discloses tactile feedback mechanism 46/48 corresponding to the location of the simulated instrument (as per claim 16). Although Jacobus et al. discloses that the simulation may be an endoscopic medical procedure, he does not specifically teach that the simulated instrument is an endoscope (column 3, line 57). Gillio, however, teaches simulated instrument 108 as being an endoscope (column 7, line 1) (as per claim 15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an endoscope for the simulated instrument, since Jacobus et al. specifically states that the simulation may be an endoscopic medical procedure.

25. Referring to claim 17, Jacobus et al. discloses a force reflective mechanism 140 that provides tactical feedback on the simulated instrument with servo-motors, but does not specifically teach that the mechanism is contained in a gastro-intestinal tract. Gillio teaches

a tactile feedback mechanism located in the gastro-intestinal tract comprising motors (column 7, lines 37-43 and line 12), but does not teach the use of pistons contacting semi-flex material. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a servo-motor in conjunction with a piston contacting semi-flex material, to provide tactile feedback to the endoscope.

26. Referring to claim 21, The gastro-intestinal track 110 disclosed by Gillio is a straight tube such that the tactile feedback and visual feedback are independent (see Figure 5).

27. As per claim 23, Gillio discloses an endoscope/tool control unit that comprises simulated forceps that are located in a handle (column 14, lines 66-67 and column 15, lines 1-3). It is the examiner's position such features of an endoscope comprising forceps that are located in the handle is old and well known in the art, since this is a well known structure for an endoscope.

28. As per claim 24, Gillio teaches a tool control unit that detects the location of simulated forceps to provide visual feedback (column 20, lines 60-65).

29. As per claim 25, Gillio teaches a tool control unit that detects the motion of simulated forceps (column 20, lines 60-65), but does not specify detection of a "roll". However, it is the examiner's position that such features of detecting a "roll" is old and well known in the art.

30. As per claim 26, the Gillio discloses the display of an endoscopic procedure, but does not specifically state that the procedure is a polypectomy. Since a polypectomy is a common procedure that is performed with an endoscope, it is the examiner's position that this feature of displaying such a procedure is old and well known in the art.

31. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobus et al. (U.S. Patent No. 5,769,640) in view of Gillio (U.S. Patent No. 5,882,206), further in view of Rosenberg (U.S. Patent No. 5,767,839). Jacobus et al. teaches a tactile feedback mechanism that is operated according to tactile feedback obtained during a medical procedure on an actual subject (column 4, lines 39-49), but does not specify that the tactile feedback is obtained through virtual reality gloves. Rosenberg teaches a tactile feedback mechanism that incorporates virtual reality gloves (column 1, line 26). Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide tactile feedback through virtual reality gloves to provide simulated feedback for a surgical procedure.

Allowable Subject Matter

32. Claims 8, 18-20, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Gibson – U.S. Patent No. 6,069,634: Deforming a Graphical Object
- Bailey – U.S. Patent No. 5,800,179: Training System for Surgical Procedures
- Sinclair et al. – U.S. Patent No. 5,766,016: Simulating Surgical Procedure

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cameron Saadat whose telephone number is 703-305-5490. The examiner can normally be reached on M-F 8:00 - 4:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Martin-Wallace can be reached on 703-308-4119. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

CS
May 16, 2002

Joe H. Cheng
Primary Examiner